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**FEDERAL COMMUNICATIONS COMMISSION
INTERNATIONAL BUREAU**

Satellite and Radiocommunication Division
Satellite Policy Branch

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**FEDERAL COMMUNICATIONS COMMISSION
OFFICE OF SECRETARY**

To: Mr. William F. Caton, Acting Secretary
Date: September 20, 1996
From: Jennifer M. Gilsenan *JMG*
Re: CC Docket No. 92-297

On September 17, 1996 representatives of the International Bureau's Satellite and Radiocommunications Division met with the participants listed in Attachment A to this Memorandum to discuss orbit locations in the 28 GHz band. *See Public Notice* No. SPB-59. The attached document, formed a basis for the discussion.

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Ka-Band Region "A" Orbital Assignment meeting - Sept. 17, 1996

Name	Company	Telephone	Fax
Ray Bender	Dow, Lehman & Albertson for Lockheed Martin	(202) 776-2758	(202) 776-2222
RICHARD BARNETT	for Lockheed Martin	(301) 229-0204	(301) 320-2421
CARLOS NALDA	Dow, Lehman & Albertson for Lockheed Martin	(202) 776-2076	(202) 776-2222
John Tanks	Lehman & Albertson for Hughes	202 637-2200	X 2201
VU PHAN	HUGHES COMMERCIAL INC	310 525 5442	310 525 5031
ANNA REHWINKEL	AT&T	908 949 7438	908 949 8082
Angie Kronenberg	Willkie Farr & Lora/Space	202 429 4726	202 887 8979
Thomas Johnston	Loral Space	415 852 5454	415 852 5656
Walter Sepaloff	K-A-STAR	804-599 9470	804 873 4887
Robert Luby	K-A-STAR	303) 694-0049	303) 694-0090
David Oweil	K-A-STAR	202/296-2007	202/429-0551
David M. Drucker	KaStar	303 526 1039	303 670 5103
Albert Shuldiner	Voe for Netsat 2a	202-639-6722	202-639-6604
Jennifer Gilson	FCC	202-418-0757	202-418-0765
Fern Jarmulnek	FCC	202-418-0751	202-418-0765
Giselle Gomez	FCC	202-418-0755	202-418-0765
Karen Waker	EchoStar	202 293-0961	202 293-0984
Dan Goldberg	Goldberg, Godley, Weisner Wright for PanAmSat	202-429-4900	202-429-4912
Dennis Diekelman	Motorola	602-732-3942	602-732-2332
Pantelis Michalopoulos	Stephens & Johnson	429-6494	429-3902
Karis Hastings	Hogan & Hartson	(202) 637-5767	(202) 637-5910
David Moskowitz	EchoStar	303-799-8222	303-799-0354
Julian Shepard	Verner Lippert for Orion	202-371-6111	202-371-6279
Robert Sorbello	Orion Satellite	301 258 3220	301-258-3319
YOUNG & LEE	CRION	301 258 3310	301 258 3319
Frank Young	Young & Farrow for MorningStar	202-663-9080	202-331-8001
Chuck Miller	Law Office of M. Gardner/Vilmar	202-758-2828	202-785-1504

Orbit Long. (°E)	USASAT #	Original Applicant	A T & T	C O M M	E C H O	G E	H U G H	K A S T	L O C K	L O R A	M O R N	N E T S	O R I O	P A N A	V I S I	Applicant responsible for AP3 preparation.	Potential assignee	Foreign satellite with priority
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REGION "A" (148°W to 67°W):

148W		Morning Star																
147W	31A										♥					Morning Star	Morning Star	
140W		KaStar																
139W	31B							♥								KaStar		
129W	31C									♥						Loral		
127W	31D	Orion								♥			♥			Orion	Orion	
125W	31E		♥							♥						AT&T		
123.2W																		LUX-KA-123.2W
123W	31F							♥		♥						KaStar		
121W	31G									♥					♥	VisionStar	EchaStar	
118.7W																		CANSAT KA-5
116.8W	32A *		♥		♥					♥				♥		PanAmSat	Loral	
115W	31H							♥		♥						KaStar	VisionStar	
114.9W																		Ka-ADVANCED SATCOM
113W	31I		♥	♥						♥					♥	AT&T	AT&T	
111.1W																		CANSAT KA-4
110W		Loral																
109.2W	31J			♥						♥					♥	Loral	KaStar	
108W																		INSAT-KA 108W
107.3																		CANSAT KA-1
106W		GE Americom																
105W	31K	Motorola VisionStar		♥		♥	♥		♥	♥		♥			♥	Motorola	GE	
103W	31L	Motorola, AT&T NetSat 28 PanAmSat (late)	♥	♥		♥	♥		♥	♥		♥			♥	Motorola	NetSat 28	
101W	31M	Hughes		♥			♥	♥	♥	♥		♥			♥	Hughes	Hughes	
99W	31N	Hughes		♥			♥	♥	♥	♥		♥				Hughes	Hughes	
97W	31O		♥				♥	♥	♥	♥		♥				Lockheed Martin	Lockheed	

* indicates a USASAT filing moved from another location

Orbit Long. (°E)	USASAT #	Original Applicant	A T & T	C O M M	E C H O	G E	H U G H	K A S T	L O C K	L O R A	M O R N	N E R T	O R I O	P A N A	V I S I	Applicant responsible for AP3 preparation.	Potential assignee	Foreign satellite with priority
96W		Lockheed Martin																
95W	31P	KaStar		♥			♥	♥	♥	♥		♥				KaStar	KaStar	
93.2W																		LUX-KA-93.2W
93W	31Q	AT&T														Orion	AT+T	
91W	31R															AT&T	Motorola	CANSAT KA-2
89W	31S															Motorola	Orion	SAMSAT-3
88W		Motorola																
87W	31T		♥	♥	♥	♥				♥						Motorola	Motorola	
86W		Motorola																
85W	31U	EchoStar	♥	♥	♥	♥				♥						EchoStar	GE	
83W	31V	Orion								♥			♥			Orion	EchoStar	
82W		GE Americom																CANSAT KA-3 SAMSAT-2
81W	31W															GE Americom	Orion	
79.2W																		LUX-KA-79.2W
79W	31X	PanAmSat														PanAmSat	PanAmSat	
77W	31Y							♥		♥					♥	PanAmSat	Motorola	
75.2W																		INSAT-75.2W
75W	31Z															KaStar	Motorola	SAMSAT-1
69.5W		Morning Star																
69W	32A															moved to 116.8W		
67W	32B	Hughes					♥									Hughes	Hughes	

* Conditioned on possibility of Commission processing its late filed applications.

* indicates a USASAT filing moved from another location

Ka-Band Applicants' Meeting - Region A

July 30, 1996

Summary of the Current Situation:

- 13 Applicants originally filed for 23 orbit locations (+ 1 late filing) in Region A (148°W to 67°W) ¹.
- Appendix 3 documents submitted by the FCC to the ITU in May 1996 for 28 orbit locations in Region A.
- Foreign administrations filed AP3 documents before the USA:
(Canada (5), UK (3), Luxembourg (3), India (2))
These foreign filings conflict seriously with 9 of the U.S. orbit locations in Region A (123°W, 109.2°W, 93°W, 91°W, 89°W, 83°W, 81°W, 79°W and 75°W) and less seriously with an additional 5 U.S. orbit locations in Region A (125°W, 116.8°W, 113°W, 95°W and 77°W).
- 19 U.S. orbit locations in Region A remain without serious conflict, compared to the requirement for 23 orbit locations (filed timely) from the applicants ².

Richard Barnett
Consultant to Lockheed Martin

¹ One of the two Morning Star orbit locations originally requested in Region A was changed to Region B, leaving only one in Region A.

² One of the required U.S. locations was filed by Netsat 28, which requested 8° orbital spacing.

Principles Used to Develop Proposal:

1. Ensure that all applicants get at least one conflict-free orbit location, and as many orbit locations as possible, up to the total number requested.
2. Attempt, where possible, to ensure that each applicant gets location(s) as close as possible to those requested in its original application, subject to minimizing conflicts with other US applicants and with foreign networks. (Moving to odd-numbered slot that is adjacent to that originally requested is not considered to be a concession.)
3. Propose changes to orbit locations, where necessary, consistent with the planned coverage of each system (e.g., the more westerly orbit locations cannot serve South America).

Rationale Applied to Each Applicant:

- AT&T (2): AT&T gets one conflict-free slot (103W as requested) and one slot with an international conflict (93W as requested - collocated with AT&T domsat orbit slot).
- Comm Inc. (4): Comm Inc. gets two of the four slots at the requested locations (87W adjacent to 88W requested, and 85W adjacent to 86W requested), without conflicts. Its other two slots have been moved from 103W/105W to 121W/123W, one of these is free from conflicts and the other has an international conflict. In total Motorola has three slots with no international conflicts and one slot with an international conflict.
- Echostar (1): Echostar is moved from 85W to 115W, which is free from international conflicts.
- GE Americom (2): GE Americom gets one conflict-free slot (105W adjacent to 106W requested) and one slot with an international conflict (81W adjacent to 82W requested).
- Hughes (3): None of Hughes' three requested slots conflict with any other US applicant or with foreign systems. All these originally requested slots are assigned.
- KaStar (2): KaStar gets one of its originally requested orbit slots (139W with no conflict) and the other is moved from 95W to 77W (also with no conflict).
- Lockheed Martin (1): Lockheed Martin's one slot does not conflict with any other US applicant or with foreign systems. This originally requested slot is assigned (97W adjacent to 96W requested).

- Loral (1): There are no conflicts with other US applicants in the region of Loral's originally requested location (110W). The nearest US-filed slot is 109.2W, but this has an international conflict. The nearest conflict-free slot to Loral's is 113W. We propose that Loral select between these two locations.
- Morning Star (1): Morning Star's one slot does not conflict with any other US applicant or with foreign systems. This originally requested slot is assigned (147W adjacent to 148W requested).
- Netsat 28 (1): Netsat 28 requested one orbit slot (103W) with 8° orbit spacing. This orbit location had conflicts with two other US applicants, and is adjacent to an orbit slot that was requested by two applicants (105W). As this is the most popular part of the US domestic arc, and the accommodation of 8° spacing would consume six of the US-filed orbit locations (five of which are without international conflict), we propose to assign Netsat 28 to 95W, which is a conflict-free location, which would require Netsat 28 to operate with 2° spacing. Alternatively, if wider orbit spacing is necessary, the more westerly location of 139W would be at least 8° from any other US-filed orbit slot, and would require that Netsat 28 and KaStar (95W) swap locations.
- Orion (3): Two of the three originally requested orbit slots are assigned to Orion - 127W (no conflict) and 83W (international conflict). The third location has been changed from 93W to 89W to overcome a conflict with AT&T at 93W (both 93W and 89W have international conflicts).

PanAmSat (1): PanAmSat gets its originally requested orbit location of 79W, which has an international conflict. In order to provide PanAmSat with at least one conflict-free location, and because PanAmSat has an additional late-filed application, we also propose to assign 129W to PanAmSat.

VisionStar (1): VisionStar originally requested 105W, which had a conflict with Motorola (and GE Americom in the adjacent orbit slot) We therefore propose to assign VisionStar to a conflict-free location of 125W.

Orbit Long. (°E)	USASAT #	Original Applicant	A T & T	C O M M	E C H O	G E	H U G H	K A S T	L O C K	L O R A	M O R N	N E T S	O R I O	P A N A	V I S I	Applicant responsible for AP3 preparation.	Potential assignee	Foreign satellite with priority
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REGION "A" (148°W to 67°W):

148W		Morning Star																
147W	31A										♥					Morning Star	Morning Star	
140W		KaStar																
139W	31B							♥								KaStar	KaStar	
129W	31C									♥						Loral	PanAmSat	
127W	31D	Orion								♥			♥			Orion	Orion	
125W	31E		♥							♥						AT&T	VisionStar	
123.2W																		LUX-KA-123.2W
123W	31F							♥		♥						KaStar	Motorola	
121W	31G									♥					♥	VisionStar	Motorola	
118.7W																		CANSAT KA-5
116.8W	32A *		♥		♥					♥				♥		PanAmSat	(spare)	
115W	31H							♥		♥						KaStar	Echostar	
114.9W																		Ka-ADVANCED SATCOM
113W	31I		♥	♥						♥					♥	AT&T	Loral	
111.1W																		CANSAT KA-4
110W		Loral																
109.2W	31J									♥					♥	Loral	(spare)	
108W																		INSAT-KA 108W
107W																		CANSAT KA-1
106W		GE Americom																
105W	31K	Motorola VisionStar		♥		♥	♥		♥	♥		♥			♥	Motorola	GE Americom	
103W	31L	Motorola, AT&T NetSat 28 PanAmSat (late)	♥	♥		♥	♥		♥	♥		♥			♥	Motorola	AT&T	
101W	31M	Hughes		♥			♥	♥	♥	♥		♥			♥	Hughes	Hughes	
99W	31N	Hughes		♥			♥	♥	♥	♥		♥				Hughes	Hughes	
97W	31O		♥				♥	♥	♥	♥		♥				Lockheed Martin	Lockheed Martin	

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Orbit Long. (°E)	USASAT #	Original Applicant	A & T	C O M	E C H	G E	H U G H	K A S T	L O C K	L O R A	M O R N	N E T S	O R I O	P A N A	V I S I	Applicant responsible for AP3 preparation.	Potential assignee	Foreign satellite with priority
96W		Lockheed Martin																
95W	31P	KaStar		♥			♥	♥	♥	♥		♥				KaStar	Netsat 28	
93.2W																		LUX-KA-93.2W
83W	31Q	AT&T														Orion	AT&T	
91W	31R								♥	♥		♥		♥		AT&T	(spare)	CANSAT KA-2
89W	31S															Motorola	Orion	SAMSAT-3
88W		Motorola																
87W	31T		♥	♥	♥	♥				♥						Motorola	Motorola	
86W		Motorola																
85W	31U	EchoStar	♥	♥	♥	♥				♥						EchoStar	Motorola	
83W	31V	Orion								♥			♥			Orion	Orion	
82W		GE Americom																CANSAT KA-3 SAMSAT-2
81W	31W									♥						GE Americom	GE Americom	
79.2W																		LUX-KA-79.2W
79W	31X	PanAmSat								♥						PanAmSat	PanAmSat	
77W	31Y							♥		♥					♥	PanAmSat	KaStar	
75.2W																		INSAT-75.2W
75W	31Z															KaStar	(spare)	SAMSAT-1
69.5W		Morning Star																
69W	32A															moved to 116.8W		
67W	32B	Hughes					♥									Hughes	Hughes	

* indicates a USASAT filing moved from another location

Orbit Longitude	USASAT #	Original Applicant	Assignee
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REGION "B" (62°W to 175.25°E):

62°W	29C *		Morning Star
58°W	32C	PanAmSat	PanAmSat
55°W	32D		AT&T
54°W		AT&T	
50°W	29C		
49°W	32E	Hughes	Hughes
47°W	32F	Orion	Orion
45°W	33M	PanAmSat (late)	PanAmSat (late)
43°W	33N	PanAmSat (late)	PanAmSat (late)
34.5°W	32G		
29°W		Lockheed Martin	
26.2°W	32H		(spare)
21.5°W	32K *		Lockheed Martin
17°W	32I		GE Americom
15°W	33S		Orion (late)
11°W		Orion (late)	
7.5°W	32J		(spare)
5.5°W	32K		
1°W		AT&T	
2°E	32L		AT&T
16°E		GE Americom	
25°E	29D +33L	Hughes	Hughes
28°E	32G *		Loral
29.5°E		Loral	
30°E	32M	Morning Star	Morning Star
36°E	32N	Hughes	Hughes
37°E		Lockheed Martin	
38°E	32O	GE Americom	Lockheed Martin
40°E	32P		Hughes
41°E		Hughes	
42°E	32Q	AT&T	AT&T
48°E	32R	Hughes	Hughes
51°E	32S		
52°E	32S *		(spare)
54°E	32T	Hughes	Hughes
56°E	32U		GE Americom
68.5°E	33O	PanAmSat (late)	PanAmSat (late)
72°E		PanAmSat (late)	
72.7°E	33P		PanAmSat (late)
78°E	32V	Orion	Orion
92°E		AT&T	
97°E	32W		AT&T
99°E	32X		(spare)

* indicates a USASAT filing moved from another location

Orbit Longitude	USASAT #	Original Applicant	Assignee
101°E	32Y	Hughes	Hughes
105.5°E	33A	Loral	Loral
107.4°E		Morning Star	
107.5°E	33B		Morning Star
108°E		GE Americom	
110°E		Hughes	
112°E	32Z		Hughes
114.5°E	33C		GE Americom
115°E		Lockheed Martin	
116°E		AT&T	
116.5°E	33D		AT&T
124.5°E	33E		Hughes
125°E		Hughes	
126°E		Orion	
126.5°E	33F		Orion
130°E	33G		Lockheed Martin
139°E	33T	Orion (late)	Orion (late)
149°E	33H	Hughes	Hughes
151.5°E	33I *		(spare)
160°E	33I		
164°E	33J	Hughes	Hughes
166°E	33Q	PanAmSat (late)	PanAmSat (late)
168°E		Lockheed Martin	
169°E	33R	PanAmSat (late)	PanAmSat (late)
173°E	33K	Hughes	Hughes
175.25°E	29F *	(Hughes)	Lockheed Martin

* indicates a USASAT filing moved from another location